SPECTRUM®

Retix Remote Bridge Management Module Guide

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Cabletron Systems, Inc.
P.O. Box 5005
Rochester, NH 03866-5005

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Preface

What is in this Document

This guide provides all the information you need to create, configure, and monitor Retix Remote Bridge devices in SPECTRUM.

Who Should Read this Manual

You should read this manual if you are going to model and monitor a Retix Remote Bridge. Before reading this manual, you should be familiar with SPECTRUM operation. You should also be familiar with any network management and hardware requirements described in the related documentation.

How This Manual is Organized

This manual is organized as follows:

Chapter	Description
Chapter 1 Introduction	Describes the Retix Remote Bridge management module and model types.
Chapter 2 Device View	Describes the Device Views available for the Retix Remote management module.
Chapter 3 Configuration View	Describes the Application View for the Retix Remote management module.
Chapter 4 Alarms and Events View	Lists and explains the event/alarm messages generated in the Event Log or Alarm for the Retix Remote management module.
Chapter 5 Application View	Provides a description of the Application View for the Retix Remote management module. This chapter also describes each application and sub-applications for this management module.

Conventions

In this manual the following conventions are used.

- Command names are printed in **bold**; for example, **Clear** or **Save & Close**.
- Menu selections to access a view are printed in **bold**; for example, **Configuration** or **Detail**.
- Buttons are represented by a shadowed box; for example,

Button

Related SPECTRUM Documentation

When using this guide, you should have a clear understanding of SPECTRUM functionality and navigation techniques as described in the Administration, Operation, and following documentation:

SPECTRUM Report Generator User's Guide

Getting Started with SPECTRUM for Operators

Getting Started with SPECTRUM for Administrators

Managing a Network with SPECTRUM

Other Related Documentation

Refer to the following documentation for more information on managing TCP/IP-based networks:

LAN Troubleshooting Handbook, Mark Miller (1989, M&T Publishing, Inc.)

The Simple Book — An Introduction to Management of TCP/IP-based Internets, Marshall T. Rose, Performance Systems International, Inc.

Computer Networks, Andrew S. Tanenbaum, Prentice-Hall, Inc.

Local Area Networks Architectures and Implementations, James Martin & Kathleen K. Chapman for the Arben Group, Inc. (1989, Prentice-Hall, Inc.)

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Location	Mail	FAX	Telephone
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Chapter 1

Introduction

What is in this Chapter

This chapter describes the SPECTRUM Management Module for the Retix Remote Bridge device. It also provides the Model Type Names assigned to the Retix Remote Bridge device in SPECTRUM.

Retix Remote Management Module

The Retix Remote Bridge Management Module and Guide provide all the information necessary to manage Retix Remote Bridges using SPECTRUM. This information includes a software emulation of the actual device attributes and functionality. SPECTRUM management of a Retix Remote Bridge is based on common and device-specific applications. The following common applications and sub-applications are discussed in the ***MIB II Applications, Bridging Applications, and Miscellaneous Applications*** references:

- MIB-II
  - System
  - TCP
  - UDP
  - ICMP

Device-specific applications and sub-applications discused in this chapter include the following:

- Station App
  - BootP App
  - Bridge App
- Bridge Ports App

The Retix Remote Bridge Model Types

The Retix Remote Bridge Management Module supports the following Retix Remote model types.

- Retix4810
- Retix4820
- Retix4850
- Retix4880
- Retix4941
- Retix4942
- Retix4982

The model type name for the bridge appears on the text label at the bottom of the Retix Remote Bridge icon located in any SPECTRUM view. The SpectroSERVER database supplies this model type name.

The Retix Remote Bridge SpectroGRAPH Models

The Retix Remote Bridge Management Module supports two modeltypes used to represent the physical Retix Remote Bridge device, the supported applications, and the Retix Remote Bridge's interfaces. The following sections provide a description of these models and the relationship.

Chapter 2

Device Views

What is in this Chapter

This chapter describes the Device Views for the Retix Remote Bridge Management Module. This description includes an explanation of the menu bar access to the various views used to control and monitor the device, and how to use the Device Views to access SPECTRUM generic views and monitor device performance.

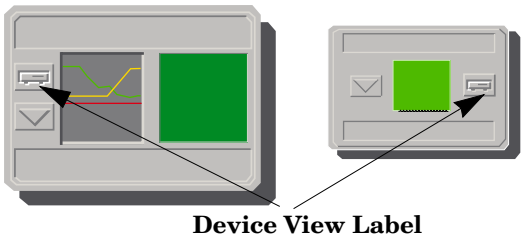
Retix Remote Bridge Device Views

The Retix Remote Bridge supports two Device Views; one for the LAN ports, the other for the WAN port(s). The Device Views allow you to view the logical representations of the Retix Remote Bridge's interfaces. The Device Views also provide you with menu bar access to the views that monitor and control the interfaces. Figure 2-1 and Figure 2-2 provide information on accessing the Retix Remote Bridge Device Views.

The Device View is accessed using one of the following methods:

- Double-click on the Application View button of the Retix Remote Bridge device icon, as shown in Figure 2-1. This opens the Device View.

Figure 2-1. Icon Double Click Zones for the Application View



Highlight the Retix Remote Bridge device icon and select **Device** from the Icon Subviews menu, as shown in Figure 2-2.

Figure 2-2. Accessing the Retix Remote Bridge LAN Interface Device View

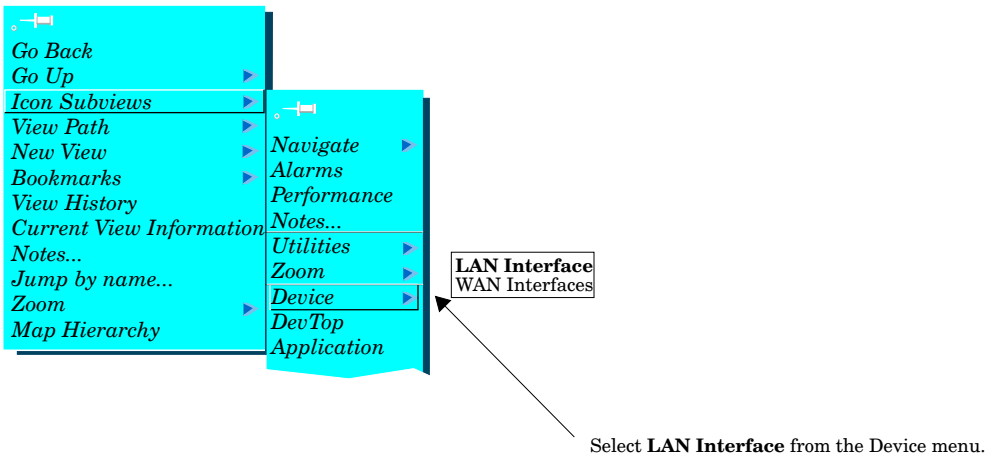
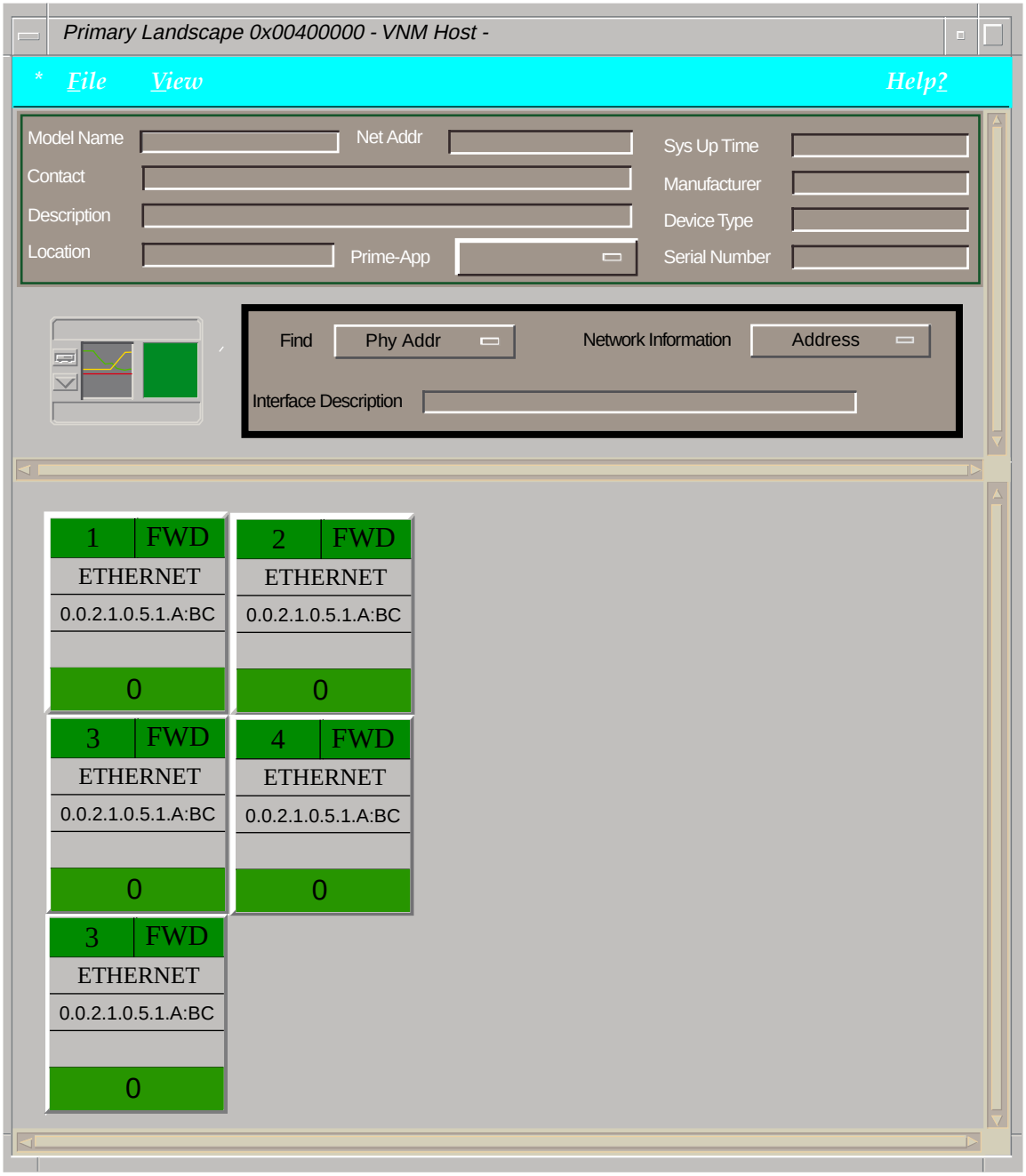


Figure 2-3 shows the Retix Remote Bridge Device View in icon mode.

Figure 2-3. Retix Remote Bridge Device View (Icon Mode)



Device Icon Panel

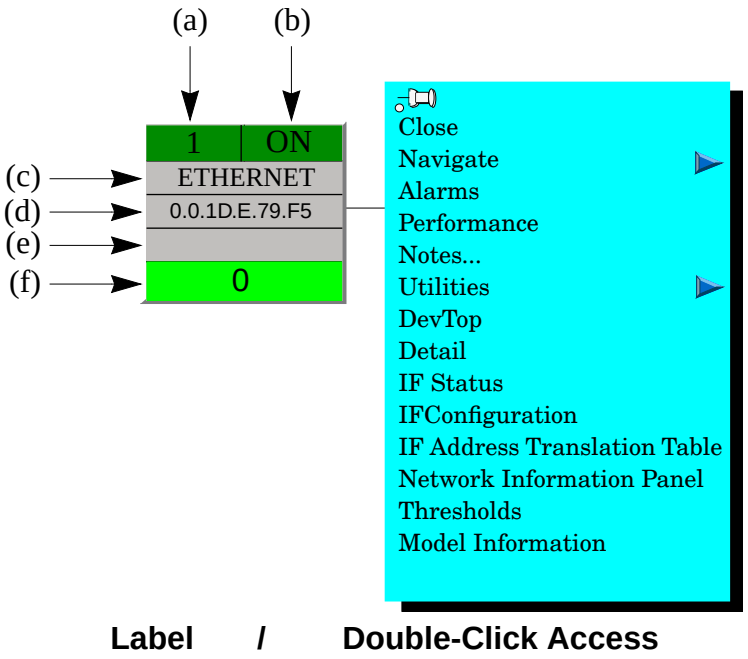
The Device Icon Panel is displayed in both the LAN and WAN Interface Device views. It displays the Retix Remote Bridge Location/Topology View Icons. The icon provides the same functionality for the Location/Topology View Icon described in Chapter 3.

Logical Interface Icons - LAN I/F View

A Retix Remote Bridge LAN Interface Device View displays a logical representation of the device's LAN interfaces. An interface icon represents each LAN port on the Retix Remote Bridge device. Additional views for the interface can be accessed by single-clicking on the interface icon to highlight it and then selecting the **Icon Subviews** option from the **View** menu, or by double-clicking each icon zone. The Port Notes facility is also accessed from the **Icon Subviews** menu.

The Logical LAN Interface Icon consists of six zones, providing configuration and performance information. Figure 2-4 provides a detailed illustration of the Logical Interface Icon and the following sections provide further information about each icon zone.

Figure 2-4. Logical Interface Icon Click Zones



(a) Device Topology View /Interface Number Label
(b) IF Status View Label
(c)IF Configuration View Label/ Interface Type
(d)IF Address Translation Table Label/ Physical Address
(e) Network Information Panel Label/IP Address
(f) Performance View Label/Logical Gauge

Device Topology View /Interface Number Label

Zone (a) of the Logical Interface Icon accesses the Retix Remote Bridge Device Topology View, discussed in the *SPECTRUM Views* reference. The zone also displays the interface number.

IF Status View Label

Zone (b) of the Logical Interface Icon displays the IF Status label and an appropriate background color to represent the current status of the interface. Table 2-1 shows the possible interface statuses and their respective colors.

Table 2-1. Interface Status Label Definitions

Operational Status	Administrative Status	Text Display	Color
ON	ON	ON	Green
OFF	OFF	OFF	Blue
OFF	ON	OFF	Yellow
Testing	Testing	Test	Red

Double-clicking on this IF Status View label accesses the Interface Status View which provides the following information on the status of the interface:

Operational Status
A read-only indicator button displaying the current operational state of the interface (ON, OFF, or Testing).

Administrative Status
The desired operational state of the interface (Default, ON, OFF, or Testing). You may change the value for Administrative Status.

IF Configuration View/Interface Type Label

The IF Configuration View label (c) Logical Interface Icon displays the type of Retix Remote Bridge interface. Possible device interface types are shown in Chapter 3, *Configuration Views* . This view is also accessed by clicking the Config button in the Performance View (see label (f)). Double-clicking on the IF Configuration View label accesses the Interface Configuration View, which provides the following information for the interface below the banner:

Operation Status
This read-only field provides the current operational state of the interface (On, Off, or Testing).

Admin Status
You can select the desired operational state of the interface (On, Off, or Testing).

Last Change
The System UpTime value when the interface entered its current operational state. This is provided in the format: D + HH:MM:SS, for example, 1+20:40:25 if the Retix Remote Bridge has been active for one day and 20 hours, 40 minutes and 25 seconds.

Network Name/Address
The IP Address assigned to the Retix Remote Bridge.

Physical Address
The Ethernet (MAC) address of the interface.

Bandwidth
The estimated bandwidth of the interface measured in bits per second. For interfaces that do not vary in bandwidth, or when no accurate estimate can be made, a nominal bandwidth is provided.

Packet Size
The largest packet that can be transmitted or received by the port, measured in octets.

Queue Length
The length of the outbound packet queue, in packets.

IF Address Translation Table/Physical Address Label

Zone (d) of the Interface Icon displays the physical address of the Retix Local Bridge device interface. Double-click this zone to access the Interface Address Translation Table. This table cross-references device IP addresses to device MAC (Ethernet) addresses for selected nodes between networks. Double-clicking on any column entry opens an address-specific Address Translation Table Information View.

Sort

Columns in the table can be sorted incrementally by single-clicking **Sort**.

Find

A particular statistical entry can be located by single-clicking **Find** and entering the statistic.

Update

The table can be updated by single-clicking the **Update** button.

Network Information Panel Label

Zone (e) of the Logical Interface Icon accesses the Network Information Panel. This panel provides Name, Network Address, and subnet mask information for the interface, and may not be supported for the Retix Remote Bridge device. Any of the network information entries from this panel can be displayed on zone (e) of the Logical Interface Icon. Refer to the Interface Options Panel section of this chapter.

Performance View Label /Logical Gauge

Zone (f) of the Logical Interface Icon (see Figure 2-4) accesses the Performance View for the interface. The Performance View is a multi-line graph and provides routing information (traffic flow) in packets, as described below.

This area is also a Logical Gauge which is described later in this chapter.

Multi-Attribute Line Graph

The Multi-Attribute Line Graph provides a general indication of routing activity. The attributes displayed are pre-selected and use colors to represent different statistics. The colors have the following definitions:

Green=Load
Blue=Packet Rate
Red=Error Rate
Gray=Discard Rate

For more information on the Multi-Attribute Line Graph, refer to the *SPECTRUM Views* reference.

Lin/Log

This button toggles between a linear and logarithmic scale presentation of the graph.

Scroll to Date-Time

Allows you to set the viewing area of the graph to begin at a specified date and time.

Change Time Scale

Allows you to specify the Y-axis time scale for the graph.

Detail

Accesses the Interface Detail View, providing three color-coded pie charts displaying packet breakdown information for the interface as described later in this section.

Config

Displays the Interface Configuration View, also accessed by double-clicking label (c) of the Interface Icon. The fields are discussed earlier in this chapter.

Threshold

Accesses the Interface Threshold View, allowing you to set statistical thresholds on a per interface basis. Thresholds can be set for the following statistics:

- Load
- Packet Rate
- Error Rate
- % Discarded

When a threshold is exceeded, an event is generated and the Retix Remote Bridge icon turns yellow.

Events

Accesses the Events Log which provides a history of the interface's status at specific times. For more detailed information on the Events Log, refer to the *SPECTRUM Systems User's Guide*.

Alarms

Accesses the Alarms View which provides information on current alarm conditions (if any) for the interface. For more detailed information on the Alarms View, refer to the *SPECTRUM Systems User's Guide*.

Transmit

Accesses an additional Performance View providing information on network traffic transmitted by this interface.

Receive

Accesses an additional Performance View providing information on network traffic received by this interface.

Interface Detail View

The Interface Detail View is accessed by clicking the **Detail** button in the Performance View. It provides three color-coded pie charts displaying packet breakdown information for the interface. Table 2-2 through Table 2-4 list the information provided by these pie charts.

Each statistic is presented as a total amount since the interface was initialized and as a percentage of overall network traffic.

Table 2-2. Packet Breakdown Pie Chart

Statistic	Definition
Delivered	Packets delivered to a high level protocol.
Transmitted	Packets transmitted through this interface.
Errors	Packets containing errors preventing them from being delivered to a higher level protocol.
Discards	Packets discarded even though no errors were detected to make them undeliverable - such packets may have been discarded to increase buffer space.

Table 2-3. Error Breakdown Pie Chart

Statistic	Definition
In Errors	Packets received containing errors.
Out Errors	Packets transmitted containing errors.

Table 2-4. Discard Breakdown Pie Chart

Statistic	Definition
Unknown	Locally addressed packets received successfully but discarded because of an unknown or unsupported protocol.
In Discards	Received packets discarded even though no errors were encountered to prevent their continued processing - such packets may have been discarded to increase buffer space.
Out Discards	Transmitted packets discarded even though no errors were encountered to prevent their continued processing - such packets may have been discarded to increase buffer space.

Interface Options Panel

The Interface Option Panel area is only displayed in the LAN Interface Device View. It allows a user to modify the presentation of the Logical Interface Icon (described previously).

Find

The Find field allows you to find a specific interface by selecting the interface's Phy (physical) Address, IP Address, Type, or Network Name, and then entering the appropriate information in the pop-up dialog box. Once the information is entered, the corresponding area of the specific Logical Interface Icon will appear highlighted.

Network Information

The Network Information field allows you to select what interface information is displayed in the Network Information Label zone of that interface's Logical Interface Icon. Possible selections are ADDRESS, NAME, or MASK.

Interface Description

This field displays the type of interface in the selected (highlighted) Logical Interface Icon. Double-clicking in the field accesses the Interface Description Map View which provides a table mapping interface numbers to their descriptions. This view can also be accessed by single-clicking on the Interface Options Panel to highlight it and then selecting the **Inf Description Map** option from the Icon Subviews menu. Double-clicking on a column entry in the Interface Description Map accesses the Interface Configuration View.

Gauge Control Panel

The Gauge Control Panel allows a user to change the type of statistical information presented in the Logical Gauge area of the Logical Interface Icon. To access the Gauge Control Panel, either double-click on the Interface Options Panel or single-click on the panel to highlight it and then select the **Gauge Control Panel** option from the Icon Subviews menu.

Gauge Mode Section

This section of the Gauge Control Panel allows a user to select the mode presented by the Logical Gauge. Possible selections are Totals, Rates, or Percentages. The Percentages selection represents the percentage of the interface compared to the rest of the interfaces. Table 2-5 shows the displayed attributes and their color definitions if the Totals or Percentages modes are selected. Table 2-6 shows the displayed attributes and their color definitions if the Rates mode is selected.

Table 2-5. Gauge Rates Mode Attributes and Color Definitions

Selected Attribute	Color
Load	Green
Load In	Green
Load Out	Green
Packet Rate	Blue
Packet In Rate	Blue
Packet Out Rate	Blue
Error Rate	Orange
Error In Rate	Orange
Error Out Rate	Orange
Discard Rate	Beige
Discard In Rate	Beige
Discard Out Rate	Beige

Table 2-6. Gauge Totals/Percentage Mode Attributes and Color Definitions

Selected Attribute	Color
In Errors	Orange
Out Errors	Orange
In Packets	Blue
Out Packets	Blue
Unknown Protocols	Yellow
In Discards	Beige
Out Discards	Beige
In Octets	Green
Out Octets	Green

Selected Attribute Section

This section of the Gauge Control Panel allows you to select any statistical attribute displayed on the Logical Interface Icon's Gauge. The label reverses color to reflect the attribute selected.Table 2-5 and Table 2-6 provide a list of the attributes and their corresponding colors.

Gauge Type

This field allows you to select either a **Numeric** or **Linear** presentation of the Logical Gauge.

Gauge Control Panel Buttons

Apply

Apply the current selections to the Logical Gauge. The settings will not be saved.

Keep Settings

Save the current gauge settings while running SpectroGRAPH.

Reset

Reset back to the last Keep Settings selections.

Close

Close the Gauge Control Panel without making any changes.

Default

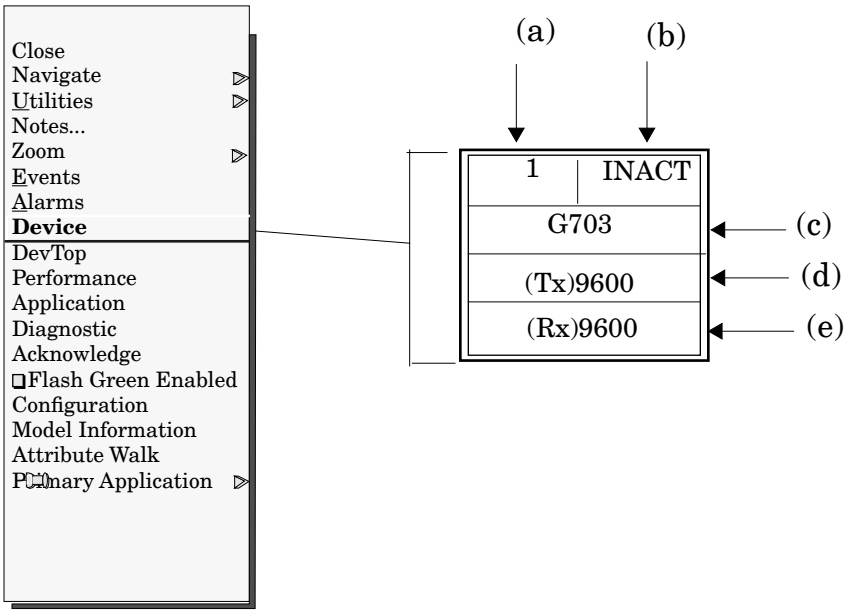
Reset back to the default attribute of In Errors.

Logical Interface Icons - WAN I/F View

A Retix Remote Bridge WAN Interface Device View displays a logical representation of the device's WAN interfaces. An interface icon represents each WAN port on the Retix Remote Bridge device. Additional views for the interface can be accessed by single-clicking on the interface icon to highlight it and then selecting the **Icon Subviews** option from the **View** menu, or by double-clicking on the icon's zones.

The WAN Logical Interface Icon consists of five zones, providing configuration and performance information. The Interface Option Panel area does not display in the WAN Interface Device View. Figure 2-5 provides a detailed illustration of the Logical WAN Interface Icon and the following sections provide further information about each icon zone.

Figure 2-5. Logical WAN Interface Icon



a. (a) Notes View Label/Interface Number

b. (b) IF Configuration View Label/Status

c. (c) IF Configuration View Label/Interface Type

d. (d) IF Tx Perf Summary Label/Measured Transmission Speed

e. (e) IF Rx Perf Summary Label/Measured Receive Speed

Notes View Label/Interface Number

Double-click zone (a) of the WAN Logical Interface Icon (see Figure 4-3) to access the Retix Remote Bridge Device Notes View. The zone also displays the interface number.

IF Configuration View Label/Status

Zone (b) of the WAN Logical Interface Icon displays a text label with an abbreviation representing each of the following interface status types: Negotiating, NotInUse, InUseActive and InUseInactive. The zone also displays an appropriate background color to represent the current status of the interface.

Double-clicking on this area accesses the Serial/LAN Port Configuration View described in Chapter 3, Configuration Views.

IF Configuration View Label/Interface Type

Zone (c) of the WAN Logical Interface Icon displays a text label representing the current interface type. Double-clicking on this area accesses the Serial/LAN Port Configuration View, similar to zone (b).

IF Tx Performance Summary Label/Measured Tx Speed

Zone (d) of the WAN Logical Interface Icon shows the measured Transmission Speed in bits/second. Double-clicking in this area accesses the Interface Transmit Performance Summary View described in Chapter 7, Generic Views.

IF Rx Performance Summary Label/Measured Tx Speed

Zone (e) of the WAN Logical Interface Icon shows the measured Receive Speed in bits/second. Double-clicking in this area accesses the Interface Receive Performance Summary View.

Chapter 3

Configuration Views

What is in this Chapter

This chapter describes the Generic Information Block (GIB) Views available for all Retix Remote Bridge devices managed by the Simple Network Management Protocol (SNMP). These views allow you to access network configuration and monitoring information, traffic flow, and error data.

This chapter provides descriptions of the generic views that are available for the Retix Remote Bridge device. These views allow you to access network configuration information, network traffic flow and error rates, and model information. The generic views are:

- Device Configuration View
- Diagnostic View

Device Configuration View

The Device Configuration View for the Retix Remote Bridge provides detailed information on the Retix Remote Bridge's network, host, port, and model configuration. To open the Device Configuration View, follow these steps:

1. Click on the Retix Remote Bridge device icon to highlight it.
2. Select the **Icon Subviews** option from the **View** menu.
3. Select the **Configuration** option from the **Icon Subviews** menu.

This view provides the following information below the banner:

Device Name
The user-defined device name. You can update this field.

Contact Status
The status of the Retix Remote Bridge. Possible values are: Established, Lost, or Initial.

Number of Interfaces
The number of ports on the Retix Remote Bridge.

Configuration View Buttons

The following buttons open the Retix Remote Bridge device Configuration Views.

Station Configuration

This button provides access to the Retix Remote Bridge Device Configuration View. The Device Configuration View fields are described below.

Model Name
The name of the Retix Remote Bridge device.

Network Address
The Internet Protocol (IP) address of the Retix Remote Bridge device.

Free Buffers
This parameter represents the number of free buffers remaining in this station.

Free Headers
This parameter represents the number of free headers remaining in this station.

Station Time
The time as perceived by the station. The string returned is a subset of UTC time.

Station Reset Counter
A count of the number of times the station has been reset since the last station initialization.

Reset Station
Used to reset the station. This action does not clear any configured data, so that after the reset, the box does not return to the factory defaults. Only 2 values are valid to use with this object. A value of 1 is always returned when a GET is performed upon the object. To force a reset, a value of 2 must be used in the SET. A SET with a value of 1 has no effect.

Initialize Station
Used to initialize the station. Any configured data is lost, and all data values are returned to factory default values.

Reset Statistics
The statistics counters are reset to zero by performing a set on this object. This reset occurs immediately.

Main Processor Load (%)
Each instance of this object gives the percentage loading on a particular processor. Currently the first instance gives the percentage loading on the staion's main processor.

Sub Processor Load (%)
The second instance of this object gives the percentage loading on the stations's sub-processor.

IF Address Translation

The **IF Address Translation** button in the Interface Configuration Table accesses the Interface Address Translation Table. This table cross-references device IP addresses to device MAC (Ethernet) addresses for selected nodes between networks. Double-clicking on any column entry opens the Address Translation Table Information View in which you can update the entry.

Interface Index
A unique value for each interface. Its value ranges between 1 and the value of ifnumber. The value 0 for each interface must remain constant at least from one reinitialization of the entity's network management system to the next re-initialization.

Physical Address
The interface's address at the protocol layer immediately below IP in the protocol stack. The ethernet address of the bridge is returned, for both channels of the bridge.

Network Address
The network address for the interface

Interface Configuration Table

The Interface Configuration Table provides port configuration information for each of the Retix Remote Bridge's ports as described below. (Double-clicking on any column entry for a particular port brings up an Interface Configuration View for that port. This view provides the same information as the table, but in a different format.)

Index
The port number on the Retix Remote Bridge is displayed.

Description
A textual description of the interface including the name of the manufacturer, the product name and version number of the hardware interface is displayed.

Type
The type of interface for the port, distinguished according to the physical/link/network protocol(s) immediately below IP in the protocol stack is displayed. Possible interface types and a brief description of each type are shown in Table 3-1.

Table 3-1. Retix Remote Device Interface Types

Interface Type	Description
other	None of the following
regular	Regular 1822
hdh1822	HDLC Distant host protocol
ddn-x25	Defense Data Network X25
rfc877-x25	RFC877 X25
ethernet-csmacd	Ethernet CSMA/CD
iso88023-csmacd	ISO CSMA/CD
iso88024-tokenBus	ISO Token Bus
iso88025-tokenRing	ISO Token Ring
iso88026-man	ISO man

Table 3-1. Retix Remote Device Interface Types (Continued)

starLan	StarLAN IEEE802.3
proteon-10MBit	ProNET 10Mbps
proteon-80MBit	ProNET 80Mbps
hyperchannel	Hyperchannel
fddi	Fiber Distributed Data Interface
lapb	X25 Line Access Procedure, Balanced
sdlc	IBM Synchronous Data Link Control protocol
t1-carrier	T1 link (USA + Japan)
cept	T1 link (Europe)
basic Isdn	Basic Integrated Services Digital Network
primary Isdn	Proprietary Integrated Services Digital Network
propPointToPointSerial	Proprietary Point to Point Serial

Bandwidth
The estimated bandwidth of the port measured in bits per second. For interfaces that do not vary in bandwidth, or when no accurate estimate can be made, a nominal bandwidth is provided.

Physical Address
The Ethernet (MAC) address of the port is displayed.

Operation Status
The current operational state of the port: On (ready to send packets), Off (down), or Testing (in test mode: no operational packets can be passed).

Admin Status
You can set the desired operational state of the port to On.

Last Change
The System UpTime value when the port entered its current operational state.

Queue Length
The length of the outbound packet queue, in packets.

Packet Size
The largest Maximum Transmission Unit (MTU) that can be transmitted or received by the port, measured in octets is displayed.

Diagnostic View

The Diagnostic View provides a breakdown of network traffic errors for the Retix Remote Bridge. Each error attribute is summarized for the total interval since first poll and the rate interval between polls.

Chapter 4

Event and Alarm Messages

What is in this Chapter

This appendix describes the events and alarms generated by the Retix Remote Bridge. Additionally, this appendix notes if an event is also mapped to an identical alarm message, and provides any probable cause messages corresponding to these alarms.

Retix Remote Bridge Events and Alarms

Events and alarms originate as generic Simple Network Management Protocol (SNMP) traps sent from the physical bridge device. These traps, or solicited messages, are translated as SPECTRUM events and displayed in the Event Log. For more information on specific traps generated by each device, refer to RFC 1213 available through the Internet system. Also refer to the MIB (Management Information Base) documentation for each specific hub.

SPECTRUM supports the following events for the Retix Remote Bridge, and show these events and alarms in Table 4-1.

Table 4-1. Remote Bridge Device Events and Alarms

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event00010203 {d"%w- %d %m-, %Y - %T"} The model created is not the same type as the device.	**CsPCause/Prob00010203** The model created is not the same type as the device.
CsEvFormat/Event00010306 {d"%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has been cold started. (event [{e}]).	**Not Applicable**
CsEvFormat/Event00010307 {d "%w- %d %m-, %Y - %T"} A(n) {t} device named {m} has been warm started. (event [{e}]).	**Not Applicable**
CsEvFormat/Event00010308 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Down. (event [{e}]).	**CsPCause/Prob00010308** Communication link is down.
CsEvFormat/Event00010309 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Up. (event [{e}]).	**Not Applicable**
CsEvFormat/Event0001030a {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an Authentication Failure. (event [{e}]).	**CsPCause/Prob0001030a** Authorisation failure. Other user is trying to connect to the Retix Remote Bridge with an invalid community string.
CsEvFormat/Event0001030b {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an EGP Neighbor Loss. (event [{e}]).	**CsPCause/Prob0001030b** Lost contact with EGP neighbor.
CsEvFormat/Event00010401 {d "%w- %d %m-, %Y - %T"} Device {m} of type {t} is created with an IP address already used by another model. (event [{e}]).	**CsPCause/Prob00010401** DUPLICATE IP ADDRESS The model has the same IP address as that of some other model.

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event00010402 {d "%w- %d %m-, %Y - %T"} Device {m} of type {t} is created with a physical (MAC) address already used by another model. (event [{e}]).	**CsPCause/Prob00010402** DUPLICATE PHYSICAL ADDRESS The model has the same Physical address (MAC address) as that of some other model.

Chapter 5

Application Views

What is in this Chapter

This chapter describes the Retix Remote Bridge Management Module Application View.The Application View allows the user to view information on the applications supported by the Retix Remote Bridge. Each application appears as an icon in the Application View. The application-specific views are described in this chapter.

SPECTRUM management of a Retix Remote Bridge is based on common and device-specific applications. The following common applications and sub-applications are discussed in the ***MIB II Applications, Bridging Applications, and Miscellaneous Applications*** references:

- MIB-II
  - System
  - TCP
  - UDP
  - ICMP

Device-specific applications and sub-applications discused in this chapter include the following:

- Station App
  - BootP App
  - Bridge App
- Bridge Ports App

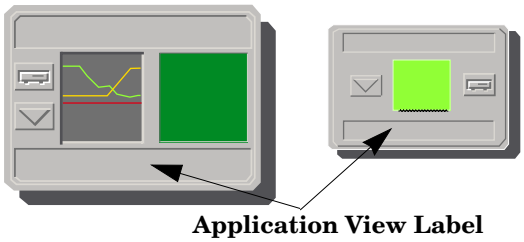
Accessing the Application View

Application-specific Model Information Views, Performance Views and Detail Views are accessed from these icons.Each application supported by the Retix Remote Bridge being modeled appears in the Application View as an application-specific icon.

Figure 5-1 shows the icon double-click zones used to access the Application View. The Application View is accessed using one of the following methods:

- Double-click on the Application View button of the Retix Remote Bridge device icon. This opens the Application View.

Figure 5-1. Icon Double Click Zones for the Application View



- Highlight the Retix Remote Bridge device icon and select **Application** from the Icon Subviews menu, as shown in Figure 5-2.

Figure 5-2. Icon Subviews Menus

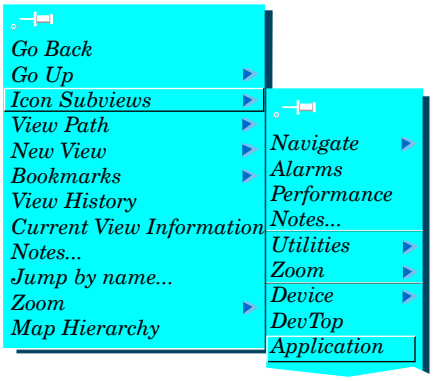


Figure 5-3 shows the Retix Remote Bridge Application View in Icon Mode.

Figure 5-3. Retix Remote Bridge Application View (Icon Mode)

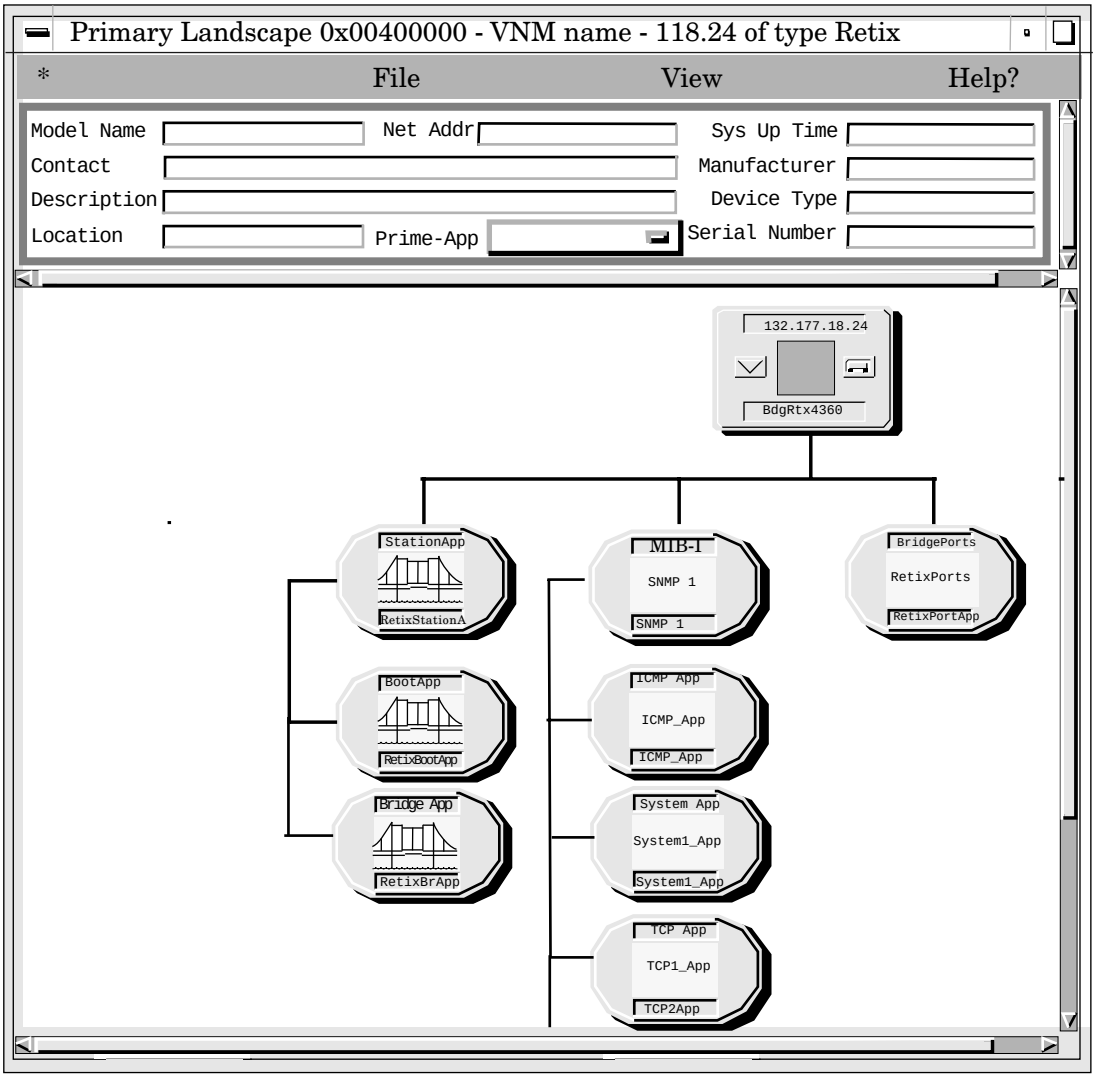
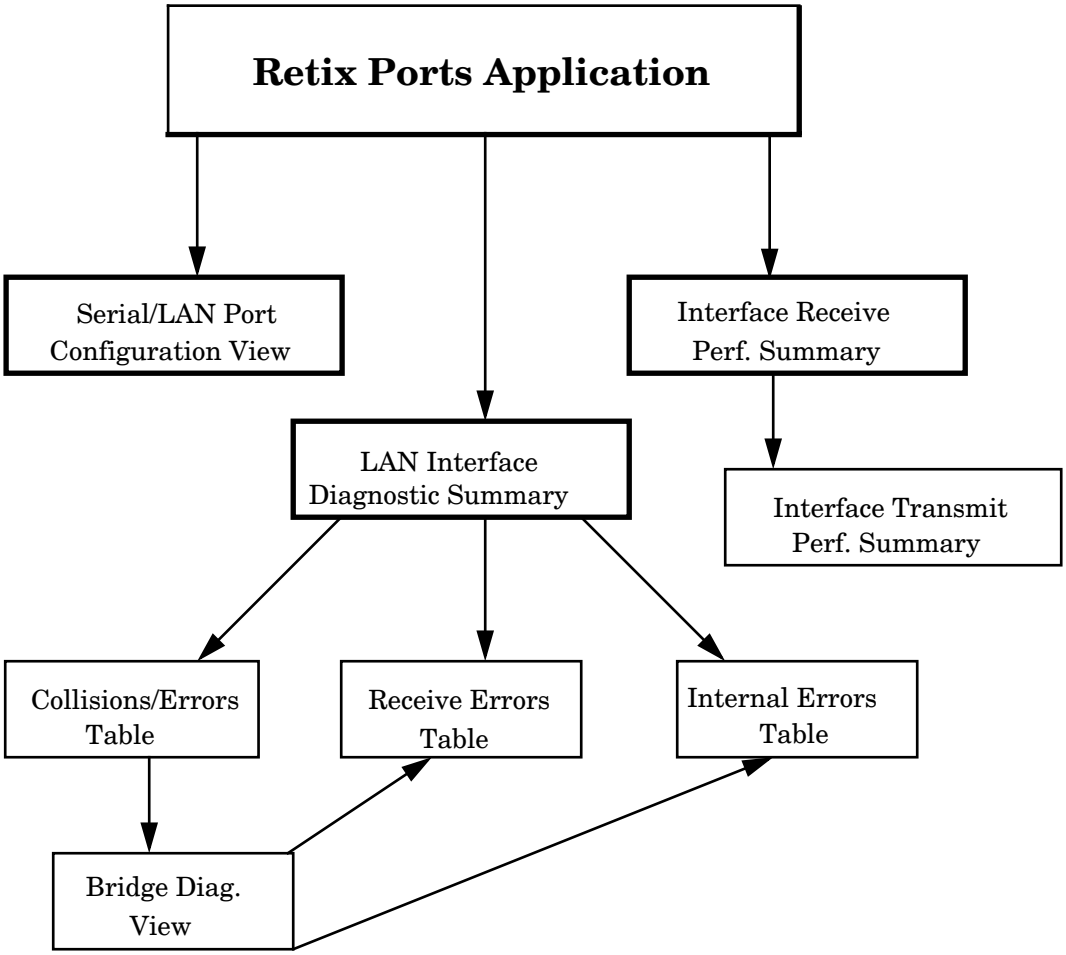


Figure 5-4 shows the Retix Remote Port Application View and each application's associated tables.

Figure 5-4. Retix Remote Port Application Views



Retix Ports Application

Serial/LAN Port Config View

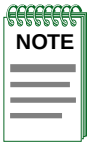
This view is accessed by highlighting the RetxPortsApp icon and selecting the **Configuration** option from the **Icon Subviews** menu. Two fields display near the top of the view.

Model Name
Displays the Retix Remote Bridge port information.

Network Address
Displays the Retix Remote Bridge device IP address.

Additional information is divided into three tables. Each table is described below.

Physical Setup Table



Double-click any entry to open the Physical Setup Table Information View. This view provides access to the Physical Setup and T1 Setup information fields.

If
The interface for this table entry.

Type
The physical interface type (personality module) present. You can update this field and the change takes effect after the next link reset. The following settings are valid: x21dte, x21dce, rs449, g703, v35, v35btb, rs232 and t1. There are some restrictions on how values can be changed:

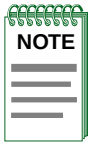
- x21dte can only be changed to x21dce and vice versa
- v35 can only be changed to v35btb and vice versa.

Meas. Speed
The measured channel speed in bits/second is displayed.

SS
This field indicates whether you can set the speed for the particular interface.The speed may not be similar to the value of the clock used over the serial link.

Speed Set/Port Speed
The value of the personality module sourced clock. If the SS field shows 1/ Settable, you can update the speed. The new value becomes effective after the next link is reset.

- For RS232, the port speed can be set to any of the pre-defined values between 2400 and 48000.
- For all other modules for which the speed can be set, the values 19600 and 24000 are invalid. In addition, there may be further restrictions depending on the module type. See the Product Specification for details.



In many cases a special cable is needed in order for this parameter to affect station operation. See the Product Specification for details.

T1 Clock
This field applies to the T1 personality module. It shows the clock's derivation point and internal or external data in the frame being received. You can update this field; the new value becomes effective after the next link reset.

Tx Delay
The time taken for a frame to transverse the physical serial link between the local and remote station. This time is determined by the station's software.

T1 Lslot
This field applies to the T1 personality module. It shows the value of the lower time slot chosen within a frame of the 1.544Mhz T1 service. You can update this field; values between 1 and 24 are allowed. The new value becomes effective after the next link reset.

T1 Hslot
This field only applies to the T1 personality module. It shows the value of the higher time slot chosen within a frame of the 1.544Mhz T1 service. You can update this field; values between 1 and 24 are allowed. The new value becomes effective after the next link reset.

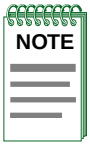
Drate
This field only applies to the T1 personality module. It shows the data rate required. You can update this field; values of 64k and 56k are allowed. The new value becomes effective after the next link reset.

F/C
This field shows Frame or Code encoding-types, being used on the 1.544MHz service. You can update this field; valid settings are fcD4andB8zs, fcD4Only, fcEsfandB8zs and fcEsfOnly.

Partner
The Partner Address, or MAC address of the remote station and its serial link connection.

Multi-Link Setup Table

This section provides information about the multi-link layer for available interfaces.



Double-click any entry to open the Multi-Link Setup Table Information View. You cannot update information in this view.

If
The index for the table entry.

State
The current state of the multi-link connection.

Send Seq
The sequence number of the next-in-sequence multi-link frame to be assigned to an SLP.

Rcv Seq
The sequence number of the next-in-sequence multi-link frame to be received.

Snd U Edge
The sum of the value of the last received acknowledgement and the value of the multi-link window size.

Rcv U Edge
The sum of the value of the sequence number sent in the last acknowledgement and the receive window size.

XQ Length
The number of items in the multi-link express queue.

XQ Limit
The express queue upper limit size.

HiPri Q Len
The number of items in the multi-link high priority queue.

HiPri Limit
The maximum size of the multi-link high priority queue.

LoPri Q Len
The number if items in the multi-link low priority queue.

LoPri Limit
The maximum size of the multi-link low priority queue.

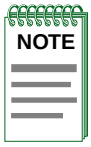
Multi-Link Setup Non-Table Fields

Two additional non-table fields appear below the Multi-Link Setup Table. These fields are described below.

Window Size
The total of sequentially numbered frames that DCE or DTE may transfer to its SLP beyond the lowest numbered multi-link frame not been acknowledged yet. The multi-link window size represents all multi-link connection instances; this field is updateable.

Receive Timeout
The time period (in 50ms units) after which the multi-link connection resets due to a receive sequence error; applies to all multi-link connections. You can update this field.

LAN Setup Table



Double-clicking on any entry opens the LAN Port Configuration View. You can update some of this fields in this view.

Index
The index for the table entry.

PromiscuousRcv
Shows the MAC sublayer in promiscuous receive state; states are Enabled or Disabled.

MAC SL Status
Shows the MAC sublayer in normal operational state at idle; states are Enabled or Disabled.

Tx Status
Shows the MAC sublayer state for transmitting frames in the LAN Port Configuration View. This field can be changed to Enabled or Disabled.

Mcast Rx Status
Shows the multicast frames receive state; states are Enabled or Disabled.

MAC Address
Displays the MAC station (Ethernet) address.

MAC Counters
Shows the Initialize/Unitialize state of the MAC sublayer; you may change this field. Select Initialize in the LAN Port Configuration View to reset the MAC layer counters.

New MAC Address

This button accesses the Retix Remote Bridge New MAC Address View, and is available only in the LAN Port Configuration View. Click this button to view the MAC Address Index and the MAC address allocated to this interface after the next station reset. You may change the MAC Address field.

LAN Interface Diagnostic Summary

The LAN Interface Diagnostic Summary is displayed by highlighting the RetxPortsApp icon and selecting the **Diagnostic** option in the **Icon Subviews** menu.The summary contains the following buttons.

- Collisions/Deferreds -

Click this button to display the Collisions/Errors Table.

- Receive Errors -

Click this button to display the Receive Errors (Diagnostic) Table.

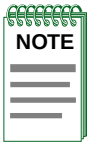
- Internal Errors -

Click this button to display the Internal Errors (Diagnostic) Table.

Each corresponding bridge table and its statistics are described below.

Collisions/Errors Table

The Collisions/Errors Table is displayed by clicking the **Collisions/ Deferreds** button in the LAN Interface Diagnostic Summary. Table information is described below.



Double-click any column entry to open the Bridge Diagnostic View; the table displays the Collision and Deferral Counter statistics as numbers and in bar gauge format. You can also access the Receive Errors Table and the Internal Errors Table from this view.

If
The index for this table entry.

SingleColls
The number of frames involved in a single collision and subsequently transmitted successfully is displayed.

MultiColls
The number of frames involved in more than one collision and subsequently transmitted successfully.

DeferredsTxs
The number of frames whose transmission was delayed on the first attempt because the medium was busy. Frames involved in collisions are not included in this count.

LateColls
The number of times above 512 bit-times (51.2 micro-seconds) a collision was detected before packet transmission. This type of collision is counted twice, both as a late collision and as a regular collision.

XcessColls
The number of frames not transmitted successfully due to excessive numbers of collisions.

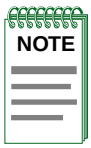
CarrSnsErrs
The number of times Carrier Sense becomes lost or never appears upon attempting to transmit a packet. This counter is incremented once per transmission attempt regardless of Carrier Sense fluctuation during the attempt.

Xcess Defers
The number of frames deferred over an excessive time period.

Receive Errors Table

This table can be displayed in two ways:

- Click the **Receive Errors** button in the LAN Interface Diagnostic Summary.
- Click the **Receive Errors** button in the Bridge Diagnostic View.



Double-clicking on an entry displays the Receive Errors Diagnostic View for the entry. Each statistic is displayed as a number and in bar gauge format. In addition there is a button for each statistic. Click this button to display the time graph for that selected entry.

The table statistics display below

If
The index for this table entry.

Too Longs
The number of frames received with a frame size larger than the maximum permitted is displayed.

Align Errs
The number of frames that are not an integral number of octets in length and do not pass the FCS check.

FCS Errs
The number of frames that are an integral number of octets in length but do not pass the FCS check.

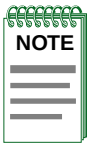
InRngErrs
The number of frames with a length field value between the minimum unpadded LLC data size and the maximum allowed LLC data size, and do not match the number of LLC data octets received. The counter also contains frames with a length field value less than the minimum unpadded LLC data size.

OutRngErrs
The number of frames with a length field value greater than the maximum allowed LLC data size.

Internal Errors Table

This view can be displayed in two ways:

- Click the **Internal Errors** button in the LAN Interface Diagnostic Summary View.
- Click the **Internal Errors** button in the Bridge Diagnostic View.



Double-clicking on an entry displays the Internal Errors Diagnostic View for the entry. Each statistic is displayed as a number and on a bar gauge. In addition there is a button for each statistic. Clicking on this button displays the time graph for that statistic for the selected entry.

The table information is displayed below.

IF
The interface number, starting with 1.

SQETstErrs
The number of SQE Test errors received.

Tx Errs
The number of frames which would otherwise have been transmitted by the station, but could not because of an internal MAC sublayer transmit error is displayed; that is, this is a count of errors for which there is no specific counter. The exact meaning and incrementation of this counter is implementation-dependent.

Rcv Errs
The number of frames that could not be received by the station because of an internal MAC sublayer transmit error; this is a count of errors for which there is no specific counter. The exact meaning and incrementation of this counter is implementation-dependent.

Interface Receive Performance Summary

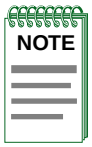
This view is accessed by highlighting the RetxPortsApp icon and selecting the **Performance** option from the **Icon Subviews** menu. It provides Model Name, Network Address, and two interface tables. The tables are described below.

LAN Interfaces

This section contains the LAN Received Data Table.

LAN Received Data Table

The LAN Received Data Table provides the following fields:



Double-clicking on an entry displays the LAN Port Performance View. The view is described later in this chapter.

If
The index for this table entry.

Frames
The total number of frames successfully received. This does not include frames received with frame-too-long, FCS length, or alignment errors. It also

does not include frames lost due to internal MAC sublayer errors. The number does include both broadcast and multicast frames.

Octets
Total number of octets received, including framing characters.

Multicasts
The number of frames received that were directed to an active non-broadcast group address. This does not include frames received with frame-too-long, FCS, length, or alignment errors. This does not include frames lost to internal MAC sublayer error.

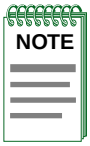
Broadcasts
The number of broadcast frames sucessfully received from a destination address that is a broadcast address.

Serial Interfaces Section

This section contains the Multi-Link Statistics table, and the Interface Transmit Summary button.

MultiLink Statistics Table

The Multi-Link Statistics Table provides receive statistics for the selected entry.



Double-clicking an entry displays the Multi-Link Statistics Table Information View. It shows the receive statistics as a number and in bar gauge format. In addition, you can click one of the provided buttons to display the time graph for the selected interface statistic.

If
Interface identifier.

Frames Lost
Number of multi-link packets lost because the out of sequence queue was full or the time spent waiting for an out of sequence frame (in order to re-establish sequence) exceeded some implementation-specific period.

Frames Deleted
Number of multi-link frames deleted because they arrived out of sequence and were outside the multi-link window.

- Interface Transmit Summary -

Click this button to display the Interface Transmit Performance Data Summary View described later in this section.

Receive Data LAN Port Performance View

This view is accessed by double-clicking on an entry in the LAN Received Data Table in the Interface Receive Performance Summary.

It shows the receive statistics for the selected entry, in number and in bar gauge format. In addition there is a button for each statistic. Click any button to display the time graph for the selected interface statistic.

- Transmit Data -

Click this button to display transmitted data statistics.

- Configuration -

Click this button to display the previously discussed LAN Port Configuration View.

Interface Transmit Performance Summary

This view is accessed by clicking on the **Interface Transmit Summary** button in the Interface Receive Performance Summary View. The Interface Transmit Performance Summary displays similar sections, fields and double-click zones, but provides data transmitted information.

RetxStation Application Views

The RetxStation application supports the following sub-applications:

- BootP App
- Bridge App

These sub-applications are described below.

Station (RetixStationApp) Application

The following application specific subviews are available for the Station application.

- Station Configuration
- Trap Setup View
- SNMP Access Policy Table
- Station Information View

The Station application subviews are described below.

Station Configuration View

This view is displayed by highlighting the RetxStationApp icon and selecting the **Configuration** option from the **Icon Subviews** menu. It presents the following information:

Model Name
The name of the Retix Remote Bridge device supplied by the user when the icon is created or supplied by the SpectroSERVER database. You can update this field.

Network Address
The Internet Protocol (IP) address of the Retix Remote Bridge. You can update this field.

Free Buffers
The number of free buffers remaining in this station is displayed.

Free Headers
The number of free headers remaining in this station is displayed.

Station Time
The time as perceived by the station. This is a subset of the UTC time as specified in the Draft Recommendation X.409 Message Handling Systems: Presentation Transfer Syntax and Notation (ASN 1). You can update this field.

Station Reset Counter
The number of times that the station has been reset since the last station reinitialization is displayed.

Reset Station
This field always displays NoAction. You set the field to Reset to reset the station. During the reset any configured values are *not* reset, so that after the reset, the station does not return to the factory defaults.

Initalize Station
This field always displays NoAction. You set the value to Initialize to initialize the station. Any configured data is lost; the station returns to its factory default values.

Reset Statistics
This field always displays NoAction. Setting the value to ResetCounters zeroes all counters immediately.

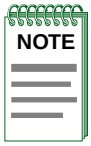
Main Processor Load
The percentage loading on the station's main processor is displayed.

Sub Processor Load
The percentage loading on the station's sub-processor is displayed.

Trap Setup View

This view is displayed by highlighting the RetxStationApp icon and selecting the **Trap Setup** option from the **Icon Subviews** menu.

Authentication Trap
Below the table, this field enables or disables the use of authentication error trap generation. The setting is usually Enabled to allow SPECTRUM alarms to function fully. You can update this field.



Double-clicking on any column within a row of the Trap Table opens the Trap Table Entry Information View for the selected entry. You can modify all the parameters in this view.

Trap Table

The table contains the fields listed below.

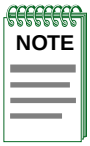
Destination Addr
The address to which the trap is sent. You can update this field in the Trap Table Entry Information View.

Community Name
The Community name to which the trap BPDUs (event information) are sent. You can update this field in the Trap Table Entry Information View.

Type
You can update this field in the Trap Table Entry Information View. Indicates if the entry is valid (part of the table) or invalid.

SNMP Access Policy Table

This table is accessed by highlighting the RetxStationApp icon and selecting the **SNMP Access** option in the **Icon Subviews** menu. The table defines the access rights of SNMP PDUs at this station. There is a maximum of 16 entries in this table.



Double-clicking on any column within a row of the SNMP Access Policy Table opens the SNMP Access Table Entry Information View which displays the parameters for the selected port. You can update the parameters in this view.

Index
Identifies the interface. You can update this field in the SNMP Access Table Entry Information View.

Community Name
The community name to which this index is assigned. You can update this field in the SNMP Access Table Entry Information View.

Access
You can update this field in the SNMP Access Table Entry Information View. Valid entries are Disabled, ReadOnly, WriteOnly and ReadWrite.

Type
This field shows whether the entry is being used during the SNMP authentication process (valid) or not being used (invalid).

Accessibility
Available in the SNMP Access Table Entry Information View only, this field is used to determine whether the entry is to be used during SNMP authentication or not; it determines the value displayed in the Type field. You can update this field to either Valid or Invalid.

Station Information View

This view is accessed by highlighting the RetxStationApp icon and selecting the **Station** option from the **Icon Subviews** menu. It shows the following information below the Model Name and Network (IP) Address:

Free Buffers
The number of free buffers remaining in this station is displayed.

Free Headers
The number of free headers remaining in this station is displayed.

Physical Block Size
The current size (in bytes) of the physical block used by the station's buffer manager is displayed in this field.

New Physical Block Size
The size (in bytes) of the physical block that will be used by the station's buffer manager after the next station reset. You can update this field.

Internal Queue Length
The current length of the queued information specific to the internal operation of the bridge is displayed in this field.

LAN Queue Length
The maximum number of frames that can be queued for transmission over the LAN interface is displayed in this field.

Internal Q Upper Limit
The upper limit for all queues of information that can be queued specific to the operation of the bridge. You can update this field.

Serial Tx Q Limit
The maximum number of LAPB frames that can be queued waiting for transmission over the serial interface. You can update this field.

BOOTP Application

One application-specific subview is available for the BOOTP application. You can access the BOOTP Protocol View from the BOOTP icon (Icon Mode) or the BOOTP text label (List Mode) Icon Subviews menu. The BOOTP Protocol View is described below.

BOOTP Protocol View

This view is accessed by highlighting the RetxBootApp icon and selecting the **Configuration** option from the **Icon Subviews** menu. This view shows the following information below the Model Name and Network Address.

Retry Count
The number of times a BOOTP request will be transmitted before the BOOTP attempt is considered to have failed. If this parameter is 0, BOOTP is skipped and an immediate TFTP download is attempted. You can update this field.

Download Retries
The number of times the complete BOOTP/TFTP download cycle is attempted before the download is considered to have failed. You can update this field.

Download File
A string inserted in the "boot filename" field of the BOOTP request. (The semantics of the file name is determined by the Boot Server.) If BOOTP is skipped, this parameter is used by TFTP as the name of the file to be downloaded. You can update this field.

Bootserver IP Address
If this address is null (0.0.0.0), the boot request is sent to the IP broadcast address. Otherwise, it is sent to this address. It is known that certain boot server implementations do not respond to the standard limited broadcast; hence the need for this parameter. You can update this field.

Unique Bcast Addr
A unique broadcast address which does not conform to the standard IP broadcast address format can be entered in this field. If you specify a unique broadcast address, this will take precedence over the standard IP broadcast address.

Initiate
A value of noAction is always displayed in this field. Setting this field to Download starts the BOOTP downline load from a remote server.

Boot Helper Information

Forwarding Address
The IP address to which the boot helper will forward a boot request. You can update this field.

Hops Limit
This field represents the limit on the distance a boot request is forwarded. It specifies the maximum number of times a boot request may have been forwarded by other boot helpers and still be forwarded by this helper. A value of 0 means that no boot requests will be forwarded. You can update this field.

Boothelper Enabled
This field enables or disabled the boot helper facility. You can update this field. Valid entries are enabled and disabled.

TFTP Setup
Click this button to display the Trivial File Transfer Protocol View.

Trivial File Transfer Protocol (TFTP) View

This view is accessed by clicking on the **TFTP Setup** button in the BOOTP Configuration View. It shows the following information below the Model Name and Network Address:

Retry Count
A value between 0 and 65535 equal to the number of times a PDU will be transmitted during a TFTP transfer before declaring the transfer to have failed. You can update this field.

Retry Period
A value between 0 and 65535 equal to the time, in units of 50 milliseconds, that TFTP will wait for the next requested block before initiating error recovery. You can update this field.

Load IP Address
If this address is 0.0.0.0, TFTP will request a download from the server address returned in the BOOTP response. Otherwise, it will use this address. You can update this field.

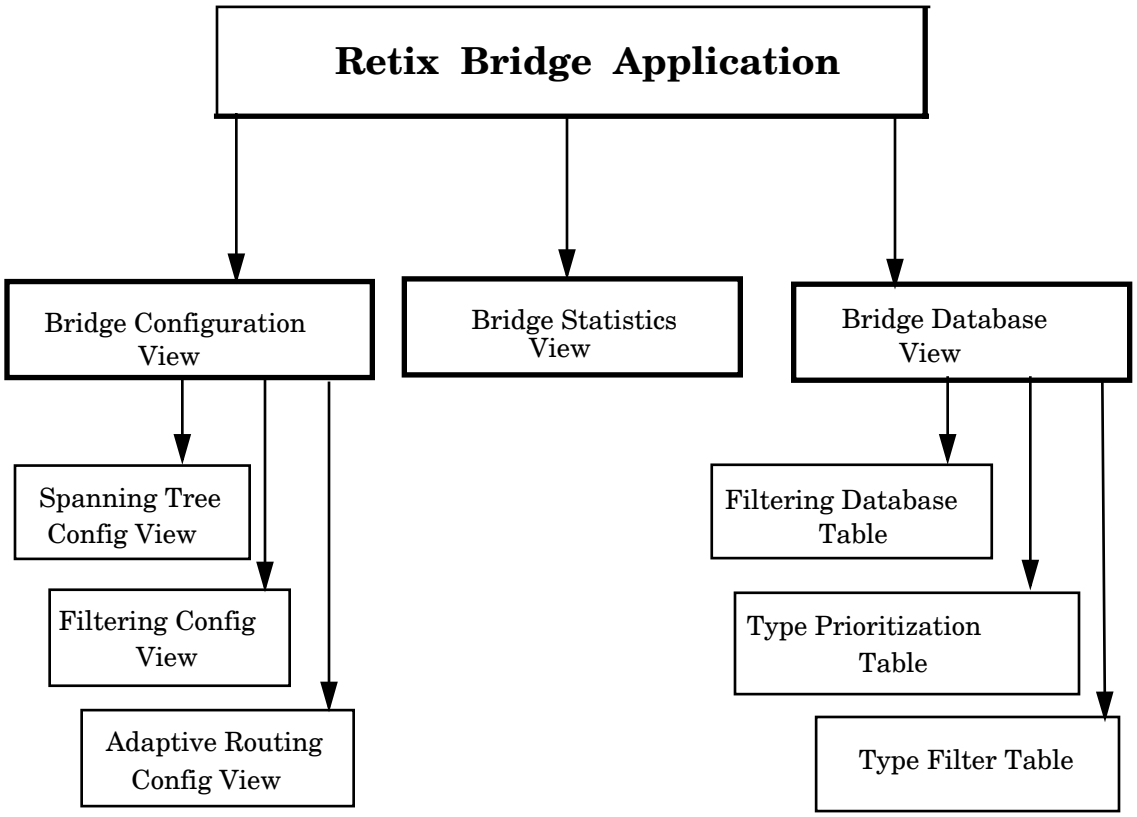
Bridge Application Views

Three application-specific subviews are available for the Bridge application. You can access the Bridge views from the Bridge icon (Icon Mode) or the Bridge text label (List Mode) Icon Subviews menu.

- Bridge Configuration View
- Bridge Statistics View
- Bridge Database View

Figure 5-5 displays other views or tables that can be accessed from each of the three subviews.

Figure 5-5. RetxBridgeApp Views



Bridge Configuration View

This view is accessed by highlighting the RetxBridgeApp icon and selecting the **Configuration** option from the **Icon Subviews** menu. The Configuration View for the Retix Remote Bridge shows model and device configuration information and provides access to additional configuration views and tables for address, interface configuration, trap setup, and SNMP access data.

Model Configuration Section

This area of the Configuration View provides the following information:

Model Name
The name of the Retix Remote Bridge device supplied by the user when the icon is created or supplied by the SpectroSERVER database. You can update this field.

Network Address
The Internet Protocol (IP) address of the Retix Remote Bridge. You can update this field.

Community Name
The Community Name that has been assigned locally to this Retix Remote Bridge.

Security String
The Retix Remote Bridge's assigned Security String. (Refer to the *User Security and User Maintenance Guide* for details on setting up security in SPECTRUM.)

Polling Interval
The time, in seconds, between SpectroSERVER polls of the network for a specific model.

Poll Log Ratio
The number of SpectroSERVER polls of a device that occur prior to logging the poll results in the database.

Device Configuration

This area of the Configuration View provides the following information:

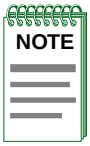
System Description
A textual description of the Retix Remote Bridge station is displayed. This description includes the name and version of the hardware type, the software operating system, and the networking software.

System Up Time
The time, in hundredths of a second, since the Retix Remote Bridge's network management software was last reinitialized is displayed.

Serial Number
A value, up to 16 characters, stored in the database. It can contain any information you wish to relate. You can update this field.

Bridging Ports
The number of ports supported by the bridging function in this station is displayed.

Serial Load Period
The sample period (in seconds) over which serial link loading is measured. You can update this field. Valid settings are 10, 20, 30, 40, 50 and 60 seconds.



Double-clicking on any entry in the Table opens the Spanning Tree Configuration View for the selected entry. You can modify several of the parameters in this view.

Spanning Tree
Clicking on this button displays the Spanning Tree Configuration View .

Spanning Tree Configuration View

This view is accessed by clicking on the **Spanning Tree** button in the Bridge Configuration View. The view provides information related to the Spanning Tree Protocol of the bridge.

Model Name
The name of the Retix Local Bridge device supplied by the user when the icon is created or supplied by the SpectroSERVER database. You can update this field.

Network Address
The Internet Protocol (IP) address of the Retix Local Bridge. You can update this field.

Spanning Tree
Describes if the Spanning Tree protocol is currently enabled or disabled. You can update this field.

SpaT Version
The version of the Spanning Tree algorithm implemented in the station, Revision-C or Revision-8 is displayed. You can update this field.

SpaT Priority
The priority used by the Spanning Tree protocol in determining the root bridge of the Spanning Tree network. The lower the value, the higher the priority. You can update this field. The valid range is 1 through 65535.

Multicast Address
The multicast address of frames used by the Spanning Tree protocol. The address is in HEX format in network byte order. You can update this field.

Hello Timer
Period of time in seconds between transmission of subsequent BPDU packets used by the Spanning Tree algorithm. You can update this field. The valid range is 1 through 10.

Reset Timer
Length of time in seconds, after a serial link is reset, for which corresponding serial port's path cost is forced to its maximum value. You can update this field. The valid range is 1 to 1800.

Spanning Tree Configuration Table

The Spanning Tree Configuration Table fields are listed as follows:

If
The interface identifier for this table entry is displayed.

Cost Mode
The mode of determining the path cost. You can update this field in the Spanning Tree Configuration View. Valid entries are:

0: The path cost is determined automatically. See the Auto Cost field.

1: The path cost is as entered in the Manual Cost field.

Auto Cost
The path cost value assigned to port automatically by this station is displayed.

Manual Cost
The path cost value (1 through 65536) manually assigned to port. You can update this field in the Spanning Tree Configuration View.

Prio Mode
This field controls the mode of determining the port priority. You can update this field in the Spanning Tree Configuration View. Valid entries are:

0: The priority is determined automatically. See the Auto Priority field.

1: The priority is as entered in the Manual Priority field.

Auto Priority
The priority automatically assigned to port by this station is displayed.

Manual Prio
A priority value manually assigned to the port. You can update this field in the Spanning Tree Configuration View. The valid range is 0 through 255.

State
The Spanning Tree state of this port is displayed; Disabled, Blocking, Listening, Learning or Forwarding.

Filtering button

Clicking on this button displays the Filtering Configuration View.

Filtering Configuration View

This view is accessed by clicking on the **Filtering** button in the Bridge Configuration View. It displays the following information below the Model Name and Network Address.

Operating Mode
This updateable field determines the basis on which bridge will forward frames. In Learning mode bridge uses the static addresses in the filtering database. In Preconfigured mode bridge uses addresses stored in its preconfigured table.

Learning
The current state of the learning mode of operation; Enabled or Disabled. You can update this field.

Filter On Src and Dest Addr
This updateable field determines whether filtering is based on the destination address alone (Disabled) or on both the source and the destination address (enabled).

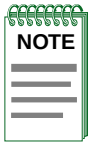
Filter On Frame Type
This updateable field determines whether filtering is based on the frame type (Enabled) or not.

On 802.3 Frame Match
If type filtering is enabled (see the Filter on Frame Type field), this parameter determines whether or not IEEE 802.3 frames are forwarded or discarded when a match is achieved. You can update this field.

On Frame Type Match
If type filtering is enabled (see the Filter on Frame Type field), this parameter determines whether or not frames are forwarded or discarded when a type match occurs. You can update this field.

Type Prioritization
This updateable field determines whether the prioritizing of traffic destined for a remote LAN, based on the type field of the frame, is enabled or disabled.

Double-clicking on any entry in the Table opens the Spanning Tree Configuration View for the selected entry. You can modify several of the parameters in this view.



This field also appears in the Filtering Prioritization Table and the Type Filter Table.

Frame Priority after Match
This field determines priority (high or low) assigned to a frame if it is forwarded after type matching. You can update this field.

802.3 Frame Priority after Match
This field determines priority (high or low) assigned to IEEE802.3 frame if it is forwarded after type matching. You can update this field.

'Forget Address' Timer
The time, in 5-second units, after which an address not seen on the local LAN is "forgotten" from the learning address table. You can update this field. The valid range is 24 through 1000.

'Delete Address' Timer
The time, in 5-second units, after which, if an address has not been seen on a local LAN, it is deleted from the learning address table. You can update this field. The valid range is 1 through 2000.

Multicast Disposition
This field determines the station action when a multicast frame is received. You can update this field. Setting the value to Conditional causes the frame to be treated like a unicast address, being forwarded only if the multicast in question is present in the filtering database with appropriate disposition. The Unconditional setting causes frame to be forwarded unconditionally to serial port.

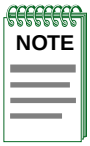
Adaptive Routing

Click this button to display the Adaptive Routing Configuration View .

Adaptive Routing Configuration View

This view is accessed by clicking on the **Adaptive Routing** button in the Bridge Configuration View. The following information is displayed below the Model Name and Network Address. All three of the following fields are updateable.

Adaptive Routing
This setting enables and disables the adaptive routing protocol for this station.



Adaptive Routing can only be enabled if the Spanning Tree protocol is enabled.

Multicast Address
The multicast address of the frames used by the adaptive routing protocol.

Maximum Serial Loading
A measure of the percentage loading of the line. If loading of serial link exceeds this value, frames queued for this link by adaptive routing are removed from the queue and queued on the other serial link.

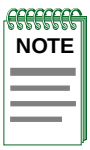
Bridge Statistics View

This view is accessed by highlighting the RetxBridgeApp icon and selecting the **Performance** option in the **Icon Subviews** menu. In addition to the model Name and Network Address, the banner displays the following information:

Average Period
The averaging period over which statistics are calculated is displayed.

Serial Loading1
The percentage loading on WAN Interface 1 is displayed.

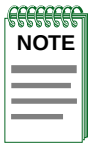
Serial Loading2
The percentage loading on WAN Interface 2 is displayed.



This field is supported on all Retix 4800 series bridges except the 4850 Remote Bridge.

Bridge Averages Table

This table is only valid for LAN ports. It displays statistics for the Retix Remote Bridge's bridging function.



Double-clicking any entry in the Table opens the Bridge Averages View. This view displays the statistics shown in the Bridge Averages Table as double bar gauges. It also provides a button for each statistic. Clicking on one of these buttons displays a time graph for that statistic.

If
A unique value for each bridge statistics instance.

Avg Forwarded
The average number of frames per second over the sampling period accepted from the LAN for forwarding to the serial ports is displayed.

Max Forwarded
The highest number of frames per second accepted from the LAN for forwarding to the serial ports since the station or the counters were last reset is displayed.

Avg. Rejected
The average number of frames per second over the sampling period that failed the filtering criteria for forwarding to the serial ports is displayed.

Max Rejected
The highest number of frames per second that failed the filtering criteria for forwarding to the serial ports since the station or the counters were last reset is displayed.

LAN Accepts
The total number of frames accepted from the LAN for forwarding to the serial ports since the station or the counters were last reset is displayed.

LAN Rejects
The total number of frames that failed the filtering criteria for forwarding to the serial ports since the station or the counters were last reset is displayed.

Deleted Frames
The number of LAN frames which have been deleted because of a lack of internal resources since the station or counters were last reset is displayed.

Bridge Database View

This view is accessed by highlighting the RetxBridgeApp icon and selecting the **Bridge Dbase** option in the **Icon Subviews** menu. Adaptive Routing Information and Table sections are described after the Model Name and Network Address fields.

Adaptive Routing Information Section

The Adaptive Routing Information section presents the following fields:

AR Destination Routes
The number of adaptive routing destination routes is displayed.

AR Source Routes
The number of adaptive routing source routes is displayed.

AR Remote Addresses
The number of adaptive routing remote addresses is displayed.

AR Learned Addresses
The number of adaptive routing learned addresses is displayed.

Tables Section

Three buttons display in this section: **Filter Database**, **Priority**, **Type Filter**. Each button accesses a different bridge table; the associated table fields are described below.

Filtering Dbase Table

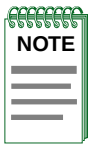
Click **Filter Database** in the Database View to display the Filtering Database Table.

MAC Address
The MAC address in HEX format in network byte order. You can update this field in the Filtering Database Information View.

Disposition
The disposition applied to the MAC address. You can update this field. Dispositions include: Discard, LAN, Channel 1, Channel 2, and Flood.

Status
The current status of the MAC address is shown in this field. Further information about different adaptive routing address types is provided by read-only indicator buttons in the Filtering Database Information View. Combinations are allowed.

Type
This field always shows a setting of Valid in the Filtering Database Table. However, when updating or adding a table entry in the Filtering Database Information View, you can select either 1 (valid) which adds the entry to the table, or 2 (invalid) which deletes the entry from the table.



Double-clicking any column entry opens the Filtering Database Information View for the entry.

Add Entry
Click this button to open the Add Database Entry View allowing you to add a new entry to the Address Filter Table.

Clear Table/NoAction
Clicking this field allows you a choice between clearing the table or completing no action.

Type Prioritization Table

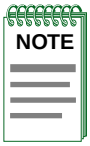
The Type Priortization Table is accessed by clicking the **Priority** button in the Bridge Database View. There can be a maximum of 8 entries in this table.

The Frame Type Prioritization Table is used when Type Prioritization is enabled. When an Ethernet frame is received that has a Type field that is contained in this table, the frame is assigned the priority specified in the Frame Priority after Match field in the Filtering Configuration View.

Priority Value
The priority value being added to, deleted, or read from the table.

Type
Shows the value being added to (valid) or deleted from (invalid) the table.

Type Prioritization
Determines the prioritization of traffic destined for a remote LAN, based on the type field of the frame.This field can be enabled or disabled.



This field also appears in the Filtering Configuration View and the Type Filter Table.

Add Entry

To add an entry, click the **Add Entry** button to open the Add Frame Type for Prioritiazation dialog box. Use the Update function to enter an Instance ID, and a Frame Type. Click **Add**.

NoAction/Clear_Table
Click **Clear_Table** to clear the Type Prioritization Table. NoAction is the default; ignore this field unless you wish to clear.

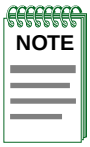
Type Filter Table

This table is accessed by clicking the **Type Filter** button in the Bridge Database View. It is used when Type filtering is enabled. When an Ethernet frame is received which has a Type field that is contained in this table, the frame is forwarded or discarded according to the setting in the On Frame Type Match field in the Filtering Configuration View.

Filtering Value
The filtering value being added to, deleted or read from the table.

Type
This field shows whether the value is being added to (valid) or deleted from (invalid) the table.

Type Filtering
This updateable parameter determines if filtering is performed on frame type.



This field also appears in the Filtering Prioritization Table and the Filter Configuration View.

Add Entry

To add an entry, click **Add Entry** and use the Update function to enter an instance ID, and a Frame Type. Click **Add**.

NoAction/Clear_Table
Click **Clear_Table** to clear the Type Prioritization Table. NoAction is the default; ignore this field unless you wish to clear.

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